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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,656	07/15/2003	Toshiya Matsubara	240298US0	5279

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EXAMINER	
COOKE, COLLEEN P	
ART UNIT	PAPER NUMBER
1754	

DATE MAILED: 07/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/618,656	MATSUBARA ET AL.	
	Examiner	Art Unit	
	Colleen P. Cooke	1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) *20-23* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/15/03, 11/24/03.* 7/20/04, 9/9/04
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Election/Restrictions

Applicant's election with traverse of Group I, Claims 1-19 in the reply filed on 5/20/05 is acknowledged. The traversal is on the ground(s) that there is not sufficient reason or example to show that the apparatus can be used to perform another process. This is not found persuasive because the rejection clearly stated that the apparatus is simply a nozzle or flow plate and therefore may be used for the spraying or distribution of *any* liquid. A specific example could be the spraying or distribution of water, but is not limited to this and could indeed be any such sprayable liquid.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 6-10, 16, and 18-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Ipponmatsu et al. (5376347).

With respect to claims 1, 2, 6, 7, 8, 16, 18, and 19, Ipponmatsu et al. teaches a method of forming inorganic silica microspheres including injecting an aqueous, silica sol solution into an organic solvent under pressure through pores in a membrane (Column 2, lines 18-20, 32-33) having a pore size of .20 μm (Column 7, line 41) at a rate of 1 $g/cm^2/min$ (Column 7, line 49), to

form a W/O type emulsion and solidifying the liquid to produce silica spheres (Column 2, lines 51-55). In one example the average particle size produced is 1.2 μm (Column 8, lines 12-13) with a standard deviation of 0.2, yet the claims broadly define that particles of 0.001 to 500 μm may be produced (see Claim 1, preamble).

With respect to claim 3, Ipponmatsu et al. teaches adding an organic or inorganic acid (Column 6, lines 23-27).

With respect to claims 9 and 10, Ipponmatsu et al. teaches (see Figure 1) that the flow path is compartmentalized by a partition (12), which is the membrane having a plurality of pores through the thickness of the membrane.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ipponmatsu et al. (5376347) as applied to claim 1 above, and further in view of Hansen (4621068).

Ipponmatsu et al. teaches the method of producing silica sphere by injection as described above with respect to claim 1. Ipponmatsu et al. teaches that the organic liquid can be an aliphatic hydrocarbon, but does not specify a C_{9-12} saturated hydrocarbon.

Hansen teaches a process of producing particles by forming a W/O type emulsion (Column 3, lines 45-46) by dispersing the solution of material to be formed, which may be a sodium silicate or silica sol (Column 2, lines 48-55), into a first liquid (Column 1, lines 62-66). Hansen teaches that this first liquid can be a saturated hydrocarbon, particularly C_{5-10} hydrocarbons and specifically names nonane (Column 3, lines 1-5). This liquid, being the same as the liquid the applicant has claimed, would have a Reynolds number of at most 500.

Claims 11-15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ipponmatsu et al. (5376347) as applied to claims 1, 9, and 16 above, and further in view of Nakaijima et al. (2002/0043731 A1).

With respect to claim s 11 and 17, Ipponmatsu et al. teaches the method of producing silica sphere by injection as described above with respect to claims 1, 9, and 16. Ipponmatsu et al. is silent as to the number of pores in the membrane through which the liquid is injected.

Nakaijima et al. teaches a similar method of producing microspheres by first forming a W/O type emulsion by injecting one liquid into another (see abstract, paragraphs 0019 and 0021). Nakaijima et al. further teaches that the apparatus is capable of increasing the number of holes to 1000/cm^2 or more which is desirable to increase production of the microspheres (paragraph 0027).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a membrane having 100 or more holes, since it has been held that discovering an optimum value or a result effective variable involved only routine skill in the art. In re Boesch, 617 F.2nd 272, 205 USPQ 215 (CCPA 1980). The artisan would have been motivated to

increase the number of holes by the reasoned explanation that doing so desirably increases production.

With respect to claims 12 and 13, Ipponmatsu et al. teaches that the flow path of the organic liquid is at an angle of 90° to the horizontal plane and flow from bottom to top (Figure 1).

With respect to claim 14, Ipponmatsu et al. is silent as to the distance from the inlet hole at the upstream side and the downstream side, it would appear this distance logically would be at least greater than 1 mm and therefore within the broadly claimed range (see Figure 1, inlet hole approximately at 14 and downstream at pipe end in 24).

With respect to claim 15, Ipponmatsu et al. teaches that the average particle size produced is 1.2 μm (Column 8, lines 12-13).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colleen P Cooke whose telephone number is 571-272-1170. She can normally be reached Mon.-Thurs. 8am-6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, her supervisor, Stan Silverman can be reached at 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Colleen P. Cooke 7/19/05

Colleen P Cooke
Primary Examiner
Art Unit 1754